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ABSTRACT

An enormous body of literature illuminates various facets of the relationship between education and employment. Views of the proper role of education have ranged from cultural transmission to societal transformation and individual development, to the current belief that it prepares for transition to adulthood, i.e., the movement from school to work. The majority of research on the education-work relationship has used the status-attainment model to demonstrate that educational level is strongly related to occupational attainment. However, the experience of blacks and women, who are overrepresented in traditional, low-level, and low-paying occupations, refutes this explanation. There is evidence that the differential returns to education for minorities and women result from continued discrimination in hiring and compensation. Another issue of education-work research concerns the benefits of vocational education. Despite the evidence, researchers appear reluctant to conclude that it provides little advantage. However, it may be more appropriate to judge vocational education by how well it does what it is meant to do. Research has also found that many workers are severely disadvantaged by lack of basic, employability, and job adjustment skills. Evidence also exists that both transferable and transfer skills are necessary for occupational adaptability. Research indicates that these skills are learned mostly in the work environment and not in school. This body of research could be improved by focus on specification of variables, less reliance on economic formulations and overinterpretation of data, increased hypothesis testing, and interdisciplinary collaboration. (SK)

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# EDUCATION AND WORK: THE ESSENTIAL TENSION

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## FOREWORD

The Educational Resources Information Center Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) is one of 16 clearinghouses in a nationwide information system that is funded by the National Institute of Education (NIE). One of the functions of the Clearinghouse is to interpret the literature that is entered into the ERIC database. This paper was developed in response to an increased interest in linking the ERIC Clearinghouses with the NIE Regional Laboratories and Research Centers; therefore, the literature resulting from the on-going program of research in the area of education and employment is reviewed and synthesized.

Although NIE-funded research is used as a basis for the paper, the publication is not intended to be either a comprehensive review or a critique of the program. Rather, it is intended to serve as a means of highlighting the research so that it can be used by others. This paper is of particular interest to vocational and career education researchers, policymakers, and administrators, as well as vocational guidance personnel.

An individual with no ties to either the ERIC Clearinghouses or the NIE Regional Laboratories and Research Centers was selected to write the paper. Such an author, it was felt, would be able to deal with the literature in an objective way and bring an outsider's perspective to the review. The profession is indebted to Louise F. Fitzgerald, Kent State University, for her scholarship in the preparation of this paper. When Dr. Fitzgerald wrote this paper she was serving as assistant professor and director of the Counseling Psychology Program at Kent State University. Recently she has become Assistant Professor in the Department of Education, University of California, Santa Barbara. Previously, she was an assistant professor, University of Maryland; research associate, Career Planning and Placement Center, University of Maryland-Baltimore County; and a senior research associate, International Personnel Management Association, Washington, D.C. Active in a number of professional associations, she also serves on the editorial boards of the *Journal of Counseling Psychology* and the *Journal of Vocational Behavior*. Dr. Fitzgerald has published extensively in areas related to career psychology and is coauthor of a forthcoming book *The Career Psychology of Women*, to be published by Academic Press.

The profession is also indebted to Henry Borow, Professor of Educational Psychology, University of Minnesota; John Bishop, Division Associate Director, and Frank Pratzner, Senior Research Specialist, the National Center for Research in Vocational Education, for their critical review of the manuscript prior to its final revision and publication. Susan Imel, Assistant Director of the ERIC Clearinghouse on Adult, Career, and Vocational Education, coordinated the publication's development with the assistance of Sandra Kerka. Linda Adams, Brenda Hemming, and Jean Messick typed the manuscript, and Janet Ray served as word processor operator. Editing was performed by Michele Naylor of the National Center's editorial services.

Robert E. Taylor
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## EXECUTIVE SUMMARY

An enormous body of literature has developed illuminating various facets of the empirical relationship between education and employment. The literature also documents the continuing dialogue among educators, the business community, the academic and research enterprise, and the general public concerning the nature of the proper role of education and how well it is perceived to be fulfilling its mandate. This paper analyzes and synthesizes the knowledge base in the area of education and employment with particular emphasis on the work done by the National Institute of Education (NIE) Regional Laboratories and Research Centers and other relevant grants. The approach taken is to identify the critical questions, both theoretical and practical, that appear to have guided this body of inquiry and to reflect the state of knowledge that bears on these questions.

To establish a framework for the inquiry, the paper begins by examining the broad philosophical question of the role of education in society. The classic view of education suggests that the role of education is cultural transmission and the development of the intellect and that its purpose is to prepare people to live well rather than to work well. This view, that education was for a small and leisured elite, gave way to the more democratic notion of education for all, and the idea of education as a means to prepare people for work emerged. Although a tension exists between the two views, it is clear that the connection between education and work is an integral part of current beliefs concerning the proper role of the school.

The empirical relationship between education and occupational attainment is examined in terms of general themes, the subpopulations of blacks and women, the outcomes of vocational education, and the question "Are Americans overeducated?" There is a solid body of empirical work supporting the view that educational level is strongly related to occupational attainment. Similarly, research on type of education (i.e., vocational, college prep) shows some of the expected relationships to employment, wages, and so forth. However, this kind of research—known as the status attainment model—has been more successful in explaining the relationship between education and work for white men than it has for women and minorities.

A review of the related research documents the differential returns of education for black and white workers and outlines some of the possible reasons for the situation, including differing levels and quality of educational achievement; differential patterns of occupational choice; changes in patterns of job availability, education, and military service; and lingering effects of segregation. Although each factor has been shown to have some relationship to the employment differential and to explain some of the variance in earnings, the following conclusion seems inescapable: a large part of the problem lies not in these variables but rather in continued patterns of employer discrimination in hiring and compensation. Therefore, policies designed to improve blacks' occupational attainment through increasing the extent and quality of their educational participation will continue to fail to fulfill their promise without continuing large-scale attitudinal change on the part of the white economic establishment. The most important role for the schools in this arena may be to prepare all their students to work for social change.

Research reveals that there is a strongly positive relationship between education and women's vocational participation and occupational attainment. However, women, like other minorities, have been unable to translate their education into the same financial and status benefits that accrue to men. One of the classic explanations for the lower returns that women receive on their education is that women choose, or are channeled into, occupational areas that are traditionally low paying. Despite the fact that the battle against the pernicious effects of sex discrimination has been fought with great vigor during the past 15 years, sex equity continues to be a critical issue for vocational education.

The goal of vocational education—to prepare individuals for gainful employment above unskilled levels—is clear; however, the results of vocational education have not always been clear. The following metaconclusion results from a review of the research on outcomes of vocational education: regardless of which outcome criteria are used, vocational education yields meager, if any, advantages to its graduates beyond those conferred by a general curriculum.

In relation to outcomes, the most reasonable question to ask is not "Does vocational education do as well or better for its students than does general education?" but rather, "How well does vocational education do what it is attempting to do in terms of whatever criteria are chosen?"

One of the most interesting arguments that is sometimes raised in current discussions of educational outcomes is whether or not Americans are "overeducated." This is a complex issue that has not yet been studied empirically. However, two propositions need to be considered—one philosophical and one political. First, education has never been defined only in terms of its relationship to work. Therefore, while it is possible to be overqualified, it is not possible to be overeducated. Second, it seems that only individuals who are highly educated are concerned with the dangers of being overeducated—and it is doubtful they are talking about themselves. Black males and females are more likely to express perceived needs for additional schooling than are their white counterparts as they realize that having a job for which one is overqualified is better than the most likely alternative.

The third section of the paper examines the question "Which parts of education are salient for employability?" Since educational institutions cannot teach everything, the answer to this question should bear on policy decisions concerning the appropriate nature of curriculum. Specifically, this section covers the literature on basic skills, general employability skills, and occupational adaptability and transfer.

The body of research indicates that basic academic competencies are (1) necessary, and (2) lacking in large numbers of workers. Although disagreement exists concerning the degree to which this situation is attributable to a decline in the quality of education received by schools' traditional clientele as opposed (or in addition) to the failure of schools to educate the large number of nontraditional (i.e., "marginal") students who now attempt (and/or complete) high school, it seems inevitable that lack of basic skills will continue to disadvantage severely those who fail to acquire them.

Among the virtually hundreds of studies that have addressed the issue of general employability skills, utilizing various methodologies, techniques, theoretical bases, and samples, no research exists that contradicts the critical importance of general employability, or job adjustment skills. Similarly, it seems apparent that significant numbers of workers, particularly neophyte workers, lack this appropriate affective and attitudinal base for employment and job adjustment. Research in this area has been hampered by the lack of standardized instruments and a sophisticated theoretical base, although recent work is promising. It seems reasonable to note that of all the factors, both personal and structural, that impinge on employment, the area of employability and job

adjustment skills is most amenable to training and development. Finally, it should be pointed out that these issues are likely to become more, not less, critical in the forseeable future.

The search for highly transferable skills has been one major focus of NIE inquiry since the mid-1970s. Research has identified many lists of transferable skills, and there seems to be a good deal of agreement as to what constitutes the most transferable skills. Despite the fact that these identified skills are those that schools try most to teach, there is a sense that, and a good bit of data indicating that, workers are deficient in these areas. The following two possibilities are suggested by the research:

- Schools assume transfer, but they do not teach for it.
- Workers, particularly youth and returning women, are unaware of the skills they possess that are applicable to many situations.

A distinction needs to be made between transferable skills—those that can be applied in a variety of work and life settings—and transfer skills—cognitive functions that facilitate the transfer of skills from one setting to the next. Transferable skills are a nonpsychological variable—the degree of transferability depends (mostly) on the nature of the skill itself and on the occupational environment. Conversely, transfer skills are a psychological variable. Although trainability of cognitive functions is closely related to general intelligence, it appears that at least some occupational transfer skills lend themselves well to being learned, and it would seem reasonable for educators to expend more time and effort consciously training students to develop such skills.

The fourth section of the paper examines the question of how and where certain skills are most effectively taught and learned, that is, in traditional school-based programs, in the more innovative alternative programs such as experience-based career education (EBCE), or on the job. The evidence from research clearly suggests that many employability skills are learned mostly on the job, although that is not where most people think they should be learned. Alternative experiential education programs such as EBCE show promise for skill development, but the results of this ambitious educational undertaking are not yet clear-cut. Obviously, though, this is an area where the schools need to do more.

In conclusion, observations are made about the body of research that describes the nature of the relationship between education and work. These observations are as follows:

- The majority of the research is characterized by large-scale survey methodology that, while helpful for identifying overall trends at a National or regional level, is less useful for understanding and predicting the experiences of individuals. The prevailing point of view is mostly economic or sociological, with relatively little emphasis on psychological variables.
- There appears to be an overreliance on economic formulations of human behavior. While it may be true that individuals seek to maximize their outcomes, it is also true that not everyone values economic outcomes to the degree that one would suspect from reading the literature.
- There is a strong tendency, particularly in large-scale studies, to "overinterpret the data." Innumerable pages of analysis are devoted to interpreting and discussing "differences" that are not statistically significant, even though sample sizes reach into the thousands.

- Qualitative methodologies (theme interpretation, ethnography, and so forth) are useful for hypothesis formulation but cannot contribute to hypothesis testing. Although rigorous experimental research is difficult in an applied setting, the effort is worth the yield.

- Although a great deal of very good work is being done to assist women to achieve a full range of career options, no comparable effort is being made with males. The sexual division of labor will not change substantially until movement across gender-appropriate lines goes in both directions.

- Finally, it should be underscored that there is little, if any, interdisciplinary collaboration. This is unfortunate, as each discipline contributes necessary but not sufficient insight. The bodies of research reviewed in this paper often exist in isolation from one another. This situation should be addressed using an interdisciplinary approach, as the topic is far too important to be left to any one discipline alone.

Information on the education-work relationship may found in the ERIC system under the following descriptors: Basic Skills; Black Employment; *Education Work Relationship; Educational Benefits; Educational Research; *Educational Status Comparison; Employed Women; Employment Level; Job Skills; Occupational Mobility; *Outcomes of Education; Racial Discrimination; *Role of Education; *Salary Wage Differentials; Sex Discrimination; Vocational Adjustment; Vocational Education; Work Environment. Asterisks indicate descriptors having particular relevance.

## INTRODUCTION

Americans believe in education. The popular aphorism "Get an education—get a good job" represented an integral part of the National mythology for generations before the empirical relationship between education and occupational attainment was formally demonstrated by Blau and Duncan (1967). In the almost 20 years since the publication of their classic work, *The American Occupational Structure*, an enormous body of literature has developed, illuminating various facets of the empirical relationship between education and employment and documenting the continuing dialogue among educators, the business community, the academic and research enterprise, and the general public concerning the nature of the proper role of education and how well it is perceived to be fulfilling its mandate. In addition, there is much practical concern within the various sectors of the educational community—vocational educators, for example, want to know how they can best prepare youth to enter the labor market; other questions relate to the basis of employer hiring decisions, the competencies considered critical by employers, the effectiveness of the schools for developing employability, the outcomes of nontraditional learning experiences, and so forth.

Consistent with the emphasis on the importance of education for employment, this relationship has been a major focus of the research programs sponsored by the Federal Government under the auspices of the National Institute of Education (NIE). This body of inquiry has examined the various facets of the education-work relationship from the standpoint of every major social science discipline, economics, sociology, anthropology, and (to a lesser extent) psychology. In the recent past, the declining position of the United States in the international marketplace and concern over the parallel decline of the Nation's educational enterprise—two phenomena that are assumed to be related (e.g., National Commission on Excellence in Education 1983)—have stimulated increased interest in this arena and generated lively discussion concerning the nature and quality of the connection between education and employment. The present paper is an attempt to analyze and synthesize the knowledge base in this area, with particular focus on the work done by the NIE research centers. Such attempts at synthesis are always somewhat ambitious, in this case perhaps particularly so, given the sprawling nature and disparate perspectives of the literature base. No claims are made for completeness. Rather, the approach taken here is to identify the critical questions, both theoretical and practical, that appear to have guided this body of inquiry and to reflect the state of knowledge that bears on these questions. Thus, we begin with the broad philosophical question of the proper role of education in society, and move to an examination of the empirical relationship between education and employment, both in general, and with respect to various subgroups of the population, i.e., blacks and women. We conclude by addressing the interesting question of whether or not Americans are "overeducated."

The third section of the paper examines the question "Which *parts* of education are salient for employability?" Since educational institutions cannot teach everything, the answer to this question should bear on policy decisions concerning the appropriate nature of curriculum. Specifically, this section covers the literature on basic skills (i.e., communication, literacy, and computation); general employability skills (e.g., job search skills, work habits and attitudes, and so forth); and occupational adaptability and transfer.

Finally, we examine the question of how and where certain skills are most effectively taught and learned; i.e., in traditional school-based programs, in the more innovative alternative programs (for example, experience-based career education), or on the job.

Each section of the paper ends with recommendations for practice and questions for future research. The paper concludes with discussion of some general methodological considerations and a critique of current research practices.

## THE ROLE OF EDUCATION IN SOCIETY

The title of the present paper implies the existence of a purposeful relationship between education and work; it suggests that, at the very least, they inform one another, and that, quite possibly, there is and should be a philosophical and functional interconnectedness between the two. It has not always been so, and indeed is not so everywhere even today.

Keppel (1966) suggests that American education rests on two assumptions: first, that humans are inherently good, and, second, that this good can be brought about by education. However, as Jenks (1976) points out "the concept of 'educational goodness,' like educational practice itself, shifts through history as competing viewpoints gain the advantage" (p. 13). He reviews Taba's (1962) summary of the three basic views of educational purpose: the *classic* or *academic*, which holds that the purpose of education is to preserve and transmit the cultural heritage; the *social change* viewpoint, which suggests that education functions as an instrument for transforming culture, not merely transmitting it; and the *individual development* viewpoint, which points to the responsibility of education to develop each individual to his or her full creative potential.

The classic view of education, which suggests that the role of education is cultural transmission and the development of the intellect (see, for example, Adler and Mayer 1958; *General Education in a Free Society* 1945; Hutchins 1936), rejects the notion of a proper relationship between education and work, holding that the purpose of education is to prepare people to live well rather than to work well. The second point of view, most strongly attributed to John Dewey (1937), and the third (an alternative interpretation of Dewey) give, respectively, implicit or explicit acceptance to the notion that one of the purposes of education is to prepare students to function successfully in society, i.e., to work. [See Jenks (1976) for a thoughtful discussion in this area, as well as Barlow (1976); Becker (1982); Gray (1982); Miller (1981); and Swanson (1982).]

The classic view that education is for a small and leisured elite gave way in the late 19th and early 20th centuries to the more democratic notion of education for all. As children of factory workers and immigrants began to fill the schools in the early 1900s, public policy debates focused on how to provide this influx of working class children with educational opportunity equivalent to that of the elite, who had previously been the only constituency of secondary education. These debates laid the groundwork for the rise of contemporary vocational education (Prosser 1913; Snedden 1910), whose philosophical roots reached far back to the 18th-century writings of Jean Jacques Rousseau and others.

It is to this connection of the work/education relationship with the democratization of American education through the influx of the "masses" that many of the contemporary tensions in the educational enterprise can be traced. Eliot's (1974) argument for the separation of general and vocational curricula and Dewey's (1913) passionate objections are echoed in contemporary accusations that vocational education serves the purpose of locking lower class and minority youth into low-level, dead-end jobs (Spivey 1978). And, the early philosophical split between the liberal arts and humanities on the one hand, and vocational preparation on the other is currently reflected in

pungent commentary such as Swanson's (1982) remark: "The debate is likely to continue at varying levels of intensity and with little to inform it except disdain and distance, both in the elitist climate in which the humanities function most comfortably" (p. 47).

Although the essential tension remains, it is clear that the connection between education and work is enshrined in current beliefs concerning the proper role of the school. Americans have charged the educational enterprise with preparing young people for the transition to adulthood, a transition that more and more has come to mean the movement from school to work. Thus, it is appropriate to examine the various empirical relationships involved for the purpose of developing a knowledge base from which theory, practice, and policy can be formulated.

## THE EMPIRICAL RELATIONSHIP BETWEEN EDUCATION AND OCCUPATIONAL ATTAINMENT

### General Themes

The majority of the research on the general relationship between education and employment has been conducted by occupational sociologists working within the status attainment model, originally formally stated by Blau and Duncan (1967). In its simplest form, this model posits that occupational attainment (or status) is a direct function of education, which is, in turn, a function of parental status. Blau and Duncan tested their model on a National sample of men (N = 20,700) in a survey entitled Occupational Changes in a Generation (OCG) and reported findings including a standardized partial regression coefficient between education and first occupation of .440 that strongly supported the hypothesized relationship.

Shortly after the publication of the work of Blau and Duncan, two articles appeared that substantially expanded the original formulation (Sewell, Haller, and Ohlendorf 1970; Sewell, Haller, and Portes 1969). This expanded model, based on an analysis of a longitudinal sample of Wisconsin residents, incorporated cognitive variables (such as intelligence and academic achievement) and sociopsychological processes (educational/occupational aspirations, encouragement of significant others) as preceding and influencing educational attainment, but left intact the relationship between education and occupational attainment. This formulation, often known as the Wisconsin Model of Status Attainment, has generated an enormous amount of empirical research, most of which has been strongly supportive of the theory, at least for white males. [See Hotchkiss and Borow (1984) for a cogent and readable review and Curry et al. (1976, 1978) and Hotchkiss and Chiteji (1981) for recent research.]

Thus, there is a solid body of empirical work available that supports the popular notion that education (in terms of level) is strongly related to occupational attainment. In a similar view, the research on type of education (i.e., vocational education, college prep), though not as unambiguous, shows some of the expected relationships to employment, wages, and so forth that have been predicted for it. (The research on outcomes of vocational education will be reviewed later.)

Despite the success of the status attainment model at explaining the relationship between education and work for white men, it has been less successful in predicting this relationship for women and minorities. Hotchkiss and Borow (1984) note that the theory does not provide a good account of race and gender influences on occupational attainment through education.

Although women have historically achieved at higher levels than men in traditional secondary education, they have remained overwhelmingly overrepresented in traditional, low-level, and low-paying occupations (Betz and Fitzgerald forthcoming; Fitzgerald and Betz 1983). Similarly, Wrigley (1982) points out that while increased enrollment figures for black youth* of all ages have led to a

*Except for some work on the Hispanic population, data on nonblack ethnic minorities is rare and scattered. Thus, the present paper focuses on the labor market experiences of black Americans, which should not be taken to imply that other minorities (e.g., native Americans) may not be, if anything, at even *more* of a disadvantage at present.

marked narrowing of the school attainment gap between blacks and whites, black youth unemployment has (paradoxically) soared. This section of the paper will examine the nature of these phenomena and will review possible explanations. The section closes with recommendations for research and practice.

### The Black Experience

The advent of the civil rights movement in the 1960s led to increased interest in the role of education and employment as the path of upward mobility for members of the black minority. The ensuing body of research, which focused on the educational and occupational attainment of blacks, has been unambivalent in its general conclusion: although education and work status are positively related to attainment for black youth, the relationship is in no way as strong and beneficial as it is for whites. And, in fact, as black educational attainments have been increasing, blacks' labor market position has been worsening, relative to whites (Wrigley 1982). Why is this the case?

Mare and Winship (1980) reviewed possible causes for the worsening relative employment status of black youths. After surveying a wide range of possible factors, they report support for three: the decline in farm employment, changes in school enrollment patterns, and in military enlistment patterns. According to Mare and Winship (1980), as the rural farm economy contracted dramatically following World War II, a large source of jobs traditionally held by youth (black youth in particular) disappeared. Also, increases in school enrollment and military enlistment increasingly resulted in the removal of the most able black youths from the labor market. Those who remain are the least employable. According to these authors, historical differences between black and white youth in the occupational sectors in which they worked and in their patterns of education and military involvement concealed the true racial disparity in youth unemployment that existed. The present convergence of black and white experiences and the scarcity of unskilled jobs has revealed the true inequality of employment.

Wrigley (1982) reviews a large body of literature and concludes that arguments blaming the employment problems of black youth on supply-side factors (such as poor skills, hostility, unrealistically low or high job aspirations) are probably misplaced. She notes that black teenagers have high job aspirations, but are willing to take low-paying jobs when these are what are available. Many hold jobs that pay less than the minimum wage. She suggests that high unemployment and restriction to a narrow range of jobs lead to alienation, as these convey the message of the ultimate irrelevancy of academic skills.

Even when black youths succeed in finding a job and establishing themselves, the returns to their education are consistently less (sometimes dramatically so) than those of their white counterparts. This statement is illustrated in table 1.

Table 1 contains simple crosstabulations of earnings on the most recent job, by race, sex, and curriculum, for three National samples: the National Longitudinal Survey of Labor Market Experience (NLS-LME Boys and Girls); the National Longitudinal Study of the High School Class of 1972 (Class of '72); and the Younger Adult Worker (YAW) data sets. All figures are presented for high school graduates with no postsecondary education (exactly 12 years of education). The YAW figures (Mertens and Gardner 1981) also include, in parentheses, difference scores for the absolute change in earnings from the first job to the most recent job. Although crosstabulations are obviously oversimplified, they suffice for the present discussion; readers are directed to the original source for a more complete analysis (Mertens and Gardner 1981; Parnes, Miljus, and Spitz 1969; Taylor, Stafford, and Place 1981).

**TABLE 1**

**MEAN HOURLY EARNINGS ON MOST RECENT JOB BY RACE, SEX, AND CURRICULUM**

| Sample | Vocational | Business | College Prep | General | All |
|---|---|---|---|---|---|
| | | | NLS-LME Sample | | |
| White Male | 6.59 | 6.87 | 6.45 | 6.25 | 6.38 |
| White Female | 3.17 | 4.14 | 4.05 | 3.75 | 3.92 |
| Minority Male | 5.15 | 5.50 | 5.48 | 4.81 | 4.97 |
| Minority Female | 2.99 | 3.86 | 4.03 | 3.40 | 3.54 |
| | | | Class of '72 Sample | | |
| White Male | 7.45 | | 7.53 | 7.39 | 7.46 |
| White Female | 5.49 | | 6.27 | 5.36 | 5.80 |
| Minority Male | 7.01 | | 7.23 | 6.79 | 6.99 |
| Minority Female | 5.29 | | 6.04 | 5.23 | 5.51 |
| | | | YAW Sample | | |
| White Male | 7.27 (+1.76) | | 9.80 (+3.46) | 7.13 | (+1.79) |
| White Female | 5.51 (+0.99) | | 5.99 (+1.38) | 4.40 | ( -0.36) |
| Minority Male | 5.54 ( - .08) | | 7.98 ( -0.67) | 5.30 | ( -0.62) |
| Minority Female | 5.93 (+0.67) | | 4.48 ( -1.26) | 4.63 | ( 0.22) |

SOURCE: Adapted from Mertens and Gardner 1981, pp. 161, 163, 164.

NOTE: Figures in parentheses are the absolute difference in wages between first job and most recent job.

Review of table 1 reveals that black males in all categories of curriculum consistently earn less than their white counterparts. Black women are even more dramatically disadvantaged, earning less than any other race/sex group, no matter what curriculum is being examined. And, in the YAW sample, the earnings of black men, rather than increasing over the time since the first job, either stayed approximately the same, or actually showed a substantial *decrease*. Similarly, being a minority manifested a significant positive correlation with weeks unemployed during the 2 previous years in all three samples.

Several explanations for the apparent inability of black youth to "capitalize" on their education have been proposed. One has been that the *quality* of education received by blacks, particularly in largely segregated, inner-city schools, is lower than the quality of education received by whites, and thus the wage differential reflects true differences in ability (a classic human capital argument). There is likely some merit to this argument; however, it certainly is not the whole story. The YAW data indicate that white males with no postsecondary education earned more than black males *with* postsecondary education in every curriculum group. Noting the rising educational involvement of black youth contrasted with their worsening occupational prospects, Wrigley (1982) states:

> Even if one adopts a very cynical view of ghetto education, it is hard to agree that increased schooling could be commensurate with *poorer* educational preparation than in previous decades. (p. 248, emphasis in the original)

In addition, Hill (1980) has noted that in 1978 white high school dropouts had a lower unemployment rate than black youth with some college experience! Finally, Greenfield (1980) presents evidence that achievement, as measured by the Adult Performance Level (APL) score, is significantly correlated with earnings for nonwhites and women, but not for white men. As Greenfield wryly noted, "White males are paid regardless of achievement, while the other groups are rewarded only if their schooling generates achievement" (p. 20). In this regard, it should be noted that the correlation between schooling and achievement for nonwhite males in Greenfield's data was a hefty .575. Thus, the argument that blacks fail to benefit intellectually from their education does not appear to be well taken.

A different approach to this problem has been taken by Gottfredson (1977a, 1977b, 1977c). Using Holland's occupational classification system as an organizing framework, she argues that blacks are overrepresented in Social (education and social service) and Realistic (manual and skilled trades) fields, where the return on education is low; and underrepresented in Enterprising (sales and management) and Conventional (clerical) fields, where the economic return on education is the highest, at least for white men. The implication is that part of the problem has to do with the vocational choices that blacks make; Gottfredson suggests that black youth should be exposed to information and training related to entrepreneurial fields. In a similar vein, J. M. Richards (1980) argues that the psychosocial environment of black colleges perpetuates the overrepresentation of blacks in social service careers. Richards classified the faculties of predominantly black colleges and those of a representative sample of U.S. postsecondary institutions into the Holland system. He found that, compared to the representative sample, black colleges were more concentrated in the Social fields and less concentrated in Realistic and Enterprising fields. He argues that this may contribute to the continuing overconcentration of blacks in the Social area, which is traditionally underpaid.

It is obviously true that the occupational distribution of black workers is different, both in field and level, from that of white workers. Stone (1981), in a philosophical history of black leadership, describes the black community. The importance of altruism, a characteristic strongly related to the Social occupational theme, and the existence of a segregated educational system that created jobs for generations of black teachers combine with Afro-Christian values to produce an unusually strong focus on what we now call the Social occupations. However, the fact that blacks choose Social jobs does not tell us why Social jobs are so underpaid (although some would say there is a connection). More directly, the fact that few blacks choose Enterprising jobs does not explain why those who do are severely underpaid compared to their white male counterparts. Gottfredson's (1977c) data indicate that blacks realize a return of only $400 per year of education in Enterprising work, whereas white men realize a return of $1,000. Clearly, blacks in sales and management are treated quite differently than their white counterparts.

Becker (1978, 1979) has investigated the problem from still another viewpoint. He argues that historical patterns of segregation have operated to distance blacks from sources of influence that are necessary or useful in finding jobs. For example, he showed that the racial distribution of higher-level workers (presumably those responsible for passing on recommendations for less-skilled workers) is related to the proportion of blacks at lower organizational levels (Becker 1978). In a second study, he hypothesized that blacks would have less access to personal networks that included whites who could act as referees or job intermediaries. Assuming that white employers would put more credence in "white" references, this segregation not only places blacks at a hiring disadvantage, but also cuts them off from the informal networking that is so useful in the job search process (Granovetter 1974; and others).

Using data from the Census Bureau's Current Population Survey of January 1973, Becker (1979) found support for his thesis that racial differences in employment are at least partially attributable to (1) the different sources of job information open to the races, (2) the recruitment channels used by employers, and (3) the means by which employers evaluate the worthiness of candidates who become known to them.

Related work by Braddock and McPartland (1981, 1983) supports the importance of participation in a desegregated environment. Their research shows that, while black workers are over-represented in a restricted range of occupations, attendance in desegregated schools may help to produce a wider range of career choices; also, black adults who attend desegregated schools are more likely to function in desegregated environments later in life (Braddock and McPartland 1981). More recent work replicates and extends these findings (Braddock and McPartland 1983).

The foregoing discussion has documented the differential returns to education for black and white workers, and outlined some of the possible reasons for this situation. Included among these were differing levels and quality of educational achievement; differential patterns of occupational choice; changes in patterns of job availability, education, and military service; and lingering effects of segregation. Each factor has been shown to have some relationship to the employment differential and to explain some of the variance in earnings. Still, it is not possible to escape the conclusion that a large part of the problem lies not in these variables, but rather in continued patterns of employer discrimination in hiring and compensation.

It will be recalled that Gottfredson (1977c) demonstrated that black men in Enterprising occupations earned considerably less than their white counterparts. The YAW data (Mertens and Gardner 1981) indicates that black male graduates, whether in a college prep, vocational, or general curriculum, earned less than did white males on their first job, and that this difference *increased* over time. Hanushek (1981) reviewed possible sources of black-white earnings differences and concluded that, if schooling and experience levels are held constant, *90 percent of the earnings gap would be closed if blacks and whites were equally rewarded for their skills*. Hanushek warns that his data should not be interpreted to mean that all earnings differentials are caused by discrimination; however, he notes, "These estimates do provide some bounds on potential levels of wage discrimination—and the evidence suggests substantial room for discrimination" (p. 32).

It would seem that policies designed to improve black occupational attainment through increasing the extent and quality of their educational participation will continue to fail to fulfill their promise without continuing large-scale attitudinal change on the part of the white economic establishment. Thus, possibly the most important thing that schools can do in this arena is to prepare all of their students to work for social change.

**Half the Human Race: Women, Education, and Work***

It is probably difficult to overestimate the importance of education to women's career development and achievements. At a very basic level, early schooling serves as a major source of learning and socialization and conveys values regarding work and career that are influential throughout one's life. More specifically, the nature and level of education obtained are importantly related to subsequent career achievements and to adult socioeconomic status and life-style. Education creates options whereas lack of education closes them, and, without options, the concept of choice is without real meaning. Thus, the decisions individuals make concerning their education, both the level and major areas of study, will be among the most important decisions they ever make. Further, success and survival in the educational programs chosen will be critical to the successful implementation of these decisions.

Whereas education is obviously an important variable in the work lives of men, the nature and level of obtained education have been strongly related to almost every major variable used in the description of women's vocational behavior (Fitzgerald and Betz 1983). One of the most striking and consistent relationships is that the more education a woman receives, the more likely she is to be working outside the home as an adult, regardless of her marital or parental status (Carnegie Commission on Higher Education 1973; Vetter 1980). For example, in 1977, 62 percent of women with bachelor's degrees were in the labor force. The effect of higher education was particularly striking for women with degrees in science and engineering—from 63 to 84 percent of science B.A.'s, from 78 to 88 percent of science M.A.'s, and 90 to 96 percent of science Ph.D.'s or professional degrees were employed (Vetter 1980).

In addition to greater labor force participation, educational level is related to stronger career orientation and career salience (Astin and Myint 1971; Gysbers, Johnston, and Gust 1968; Harmon 1970; and others), and to the choice of pioneer and nontraditional occupations (Almquist 1974; Astin 1968; Greenfeld, Greiner, and Wood 1980; Lemkau 1979; Moore and Veres 1976).

Unfortunately, despite this strongly positive relationship between education and women's vocational participation and occupational attainment, women, like other minorities, have been unable to translate their education into the same financial and status benefits that accrue to white men. For example, although a woman employed full time with a college degree earns more than a woman with less education, she earns no more than does a man with an eighth-grade education (U.S. Women's Bureau 1979). Also, a woman employed full time who finished high school is no better off financially than men who failed to complete elementary school. Table 1 demonstrates that women in all three National data sets earned anywhere from one-half to two-thirds the wages of comparably educated white men. They also earned less than minority men with the same training. Mertens et al. (1980), in a major review of the outcomes of vocational education programs, noted that although technical programs were consistently associated with the highest earnings and home economics were associated with the lowest, males outearned females in every program area.

One of the classic explanations for the lower returns that women receive on their education is that women choose, or are channeled into, occupational areas that are traditionally low paying. Women, like blacks, are historically concentrated in the Social field, an area that parallels in its activities the nurturing, supportive functions of the traditional female sex role. It is also true that,

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*A major portion of this discussion is adapted from "Women's Career Choices: The Influence of Education," a chapter in the forthcoming book, *The Career Psychology of Women*, by Nancy E. Betz and Louise F. Fitzgerald, to be published by Academic Press.

for whatever reason, most women do wind up in the so-called "pink collar" (Howe 1977) occupations. However, that does not explain why they are paid so little. Consider, for example, table 2.

Table 2 displays the 10 largest occupations for men and women in 1970, along with their median earnings. Almost all of these occupations are highly sex stereotyped (teacher, nurse, secretary, and so forth), and the median wages are, in most cases, far below those paid in the stereotypical masculine occupations (managers, truck drivers, carpenters, mechanics). It is clear from table 2 that education and skill level are not, however, the basis for compensation; in these data, male truck drivers are earning more than female nurses and teachers, who are required to complete far more education. In fact, male janitors are paid more than female bookkeepers. Table 3 displays the median weekly earnings of the same 20 occupations in 1982. Although some of the most glaring discrepancies have narrowed (women bookkeepers, for example, now make $7.00 more per week than do male janitors!), the general picture remains the same. In fact, in 1982, a male high school dropout still earned more than a women holding a graduate degree (e.g., 5 years of college or more) (Mellor 1984).

It should also be pointed out that when men and women are in the *same* job, the men are paid (sometimes substantially) more. For example, Mellor (1984) writes: "In each of the 10 lowest paying and the 10 highest paying occupations in which 50,000 or more of each sex were employed (in 1982), women were far less likely than men to earn $500 or more" (p. 23). In a similar analysis of the 1981 most highly paid occupations, Rytina (1982) writes "the earnings of women in these occupations do not approach the earnings of men. The $422 median usual weekly earnings of female operations and systems researchers and analysts, for example, would place just above the pay of electricians for men, an occupation which is well below the top 20 on the male ranking. The pay for female librarians is just above that of men working as precision machine operations, a classification which is in the bottom third of the male earnings ranking" (p. 30). It is difficult to escape the conclusion that the men are paid more quite simply because they are men, and not because of the intrinsic value of what they do. [This observation is the core of current controversy concerning what has come to be called "comparable worth" or "equal pay for work of equal value." The reader is referred to Blumrosen (1979) for a scholarly analysis of this concept. A short, nontechnical summary is available in Fitzgerald and Betz (1983).]

Leaving aside male-female comparisons, there is less than perfect agreement on the kinds of vocational training that bring the most return to female workers. Grasso and Shea (1977) report some employment advantage for those training programs associated with "female" jobs where employers expect to hire workers with developed skills. Their National Longitudinal Survey analysis suggests that female business and commercial graduates may be less vulnerable to unemployment than their general curriculum colleagues and that such training confers an hourly and annual wage advantage relative to both general and academic students. Meyer (1981) found similar results in the Class of '72 sample.

Reviewing these data, Berryman (1982) suggests:

> Employers have regarded females as high turnover employees, that is, ones from whom they could not recoup training costs. In turn, females have needed general human capital skills that allowed them to move in and out of the labor market as family composition changed or their husbands' job locations changed. Against this history, we would expect to see in the data what we do see: employment and wage payoffs to traditionally female skills that can be acquired in secondary vocational education. (p. 196)

**TABLE 2**

**THE 10 LARGEST OCCUPATIONS FOR FEMALES AND MALES RANKED BY NUMBER IN THE 1970 LABOR FORCE, WITH 1970 MEDIAN EARNINGS**

| Rank | Title | Number in Experienced Civilian Labor Force, 1970 | 1970 Median Earnings |
|---|---|---|---|
| Females | | | |
| 1. | Secretaries, except legal and medical | 2,704,996 | $4,803 |
| 2. | Sales workers | 1,764,391 | 2,274 |
| 3. | Bookkeepers | 1,307,251 | 4,477 |
| 4. | Elementary school teachers | 1,214,743 | 6,856 |
| 5. | Waitresses | 990,259 | 1,662 |
| 6. | Typists | 961,857 | 4,042 |
| 7. | Sewers and stitchers | 883,678 | 3,379 |
| 8. | Registered nurses | 825,963 | 5,603 |
| 9. | Maids and servants, private household | 660,420 | 1,093 |
| 10. | Clerical workers, unspecified | 648,272 | 4,056 |
| | | | $\bar{X}$ = 3,646 |
| Males | | | |
| 1. | Managers and administrators | 3,114,276 | 11,161 |
| 2. | Sales workers | 2,369,269 | 8,121 |
| 3. | Foremen | 1,468,320 | 10,018 |
| 4. | Truck drivers | 1,442,046 | 7,246 |
| 5. | Farmers, owners and tenants | 1,237,294 | 4,816 |
| 6. | Janitors and sextons | 1,102,922 | 4,771 |
| 7. | Carpenters | 916,005 | 7,025 |
| 8. | Automobile mechanics | 821,822 | 6,862 |
| 9. | Miscellaneous machine operators, specified | 770,656 | 7,116 |
| 10. | Farm laborers, wage workers | 696,141 | 2,493 |
| | | | $\bar{X}$ = 7,620 |

SOURCE: Sommers 1979, pp. 18, 19.

**TABLE 3**

**MEDIAN USUAL WEEKLY EARNINGS IN 1982**

| Occupation | Earnings |
|---|---|
| Women | |
| 1. Secretaries, except legal and medical | 241 |
| 2. Sales workers (retail) | 167 |
| 3. Bookkeepers | 240 |
| 4. Elementary school teachers | 339 |
| 5. Waitresses | 149 |
| 6. Typists | 227 |
| 7. Sewers and stitchers | 165 |
| 8. Registered nurses | 366 |
| 9. Maids and servants, private household | 111 |
| 10. Clerical workers, unspecified | 236 |
| Men | |
| 1. Managers and administrators | 518 |
| 2. Sales workers | 239 |
| 3. Blue-collar worker supervisors | 438 |
| 4. Truck drivers | 331 |
| 5. Farmers, owners and tenants | data not available |
| 6. Janitors and sextons | 234 |
| 7. Carpenters | 341 |
| 8. Automobile mechanics | 308 |
| 9. Miscellaneous machine operators | 322 |
| 10. Farm laborers, wage workers | 185 |

SOURCE: Adapted from Mellor 1984, pp. 20-23.

Similar results are reported by Mertens and Gardner (1981) and are also reflected in the popular wisdom that urges young women to learn typing and shorthand, so that they have "something to fall back on."

However, there are data that suggest another perspective. In the YAW sample mentioned earlier, Mertens and Gardner (1981) also found that women in the trade and industry curriculum, a particularly nontraditional area of study for their sex, enjoyed higher earnings than women in the general curriculum.

The battle against the pernicious effects of sex role stereotyping has been pursued with great vigor in the late 1970s and early 1980s. Over the last 10 years, *Resources in Education* has indexed well over a thousand titles on sex equity in education. To review adequately the research in this area would require a lengthy monograph devoted to that topic alone. However, despite the virtual outpouring of research on sex equity, and despite some gains for women in the general marketplace, much remains to be done. One recent study in 15 States indicated that the percentage of women in nontraditional programs was only 10 percent in 1978, although this represented an increase from 6 percent in 1972 (National Advisory Council on Vocational Education 1980). Mertens and Gardner (1981) report that their results "strongly indicate that sex stereotyping is a pervasive element in the type of vocational program and in the type of employment experienced by the Younger Adult Worker cohort" (p. 97). They state that it is clear that sex equity continues to be a critical issue for vocational education, an observation with which there is little disagreement. Much more remains to be done in this area.

## The Outcomes of Vocational Education

No treatise on education and work would be complete without discussion of the outcomes associated with vocational education. Although there are still pockets of discussion, some of them heated, concerning whether or not education in general should concern itself with its relevance to occupational preparation, no such uncertainty exists concerning vocational education. As Woods and Haney (1981) state, "the goal which most clearly characterizes vocational education, as distinct from other forms of education, is that it has been intended to help prepare individuals for gainful employment above unskilled levels" (p. 8-1-1). Though the overall goal of vocational education is relatively clear, such clarity has historically not extended to its results. As Mertens (1981) remarks, "The effects from participation in vocational education are probably the most debated policy questions relevant to vocational education" (p. 1). Even a cursory review of the literature reveals lively debate concerning the appropriate outcome criteria (earnings, status, unemployment status, advancement versus or in addition to student satisfaction, employer satisfaction, additional education completed, attainment of basic skills, and so forth); the appropriate comparison group (academic graduates, general curriculum graduates, nongraduates); and even the appropriate procedures for identifing a vocational education student for further study (i.e., self-report, administrator report, or curriculum transcript).

Concern over these issues has stimulated the appearance of several major reviews (Carbine 1974; Grasso and Shea 1979; Mertens et al. 1980; Woods and Haney 1981) as well as reviews of reviews (Lewis 1983, 1984; Lewis and Mertens 1981; McKinney and Fornash 1984). Ordinarily, papers such as these carefully attempt to identify their criteria, disaggregate results by sex, race, and (sometimes) program area, report conclusions separately for secondary and postsecondary programs, and scrupulously qualify their conclusions in terms of methodological considerations. When all is said and done, the following metaconclusion seem justified: vocational education yields meager, if any, advantages to its graduates beyond those conferred by a general curriculum. This conclusion holds whatever outcome criteria are utilized.

In their review of all outcome studies conducted between 1968 and 1979 that were methodologically sound enough to permit conclusions, Mertens et al. (1980) found the following:

- No differences appear to exist in unemployment rates between vocational and nonvocational high school graduates.
- Most studies report no differences in earnings between vocational and nonvocational graduates. Those studies that do find an initial difference in favor of vocational education graduates report that it disappears over time.
- There is little, if any, advantage for vocational graduates in terms of basic skills achievement.
- It is unclear whether vocational education helps to retain potential dropouts.
- Civic activity (i.e., voting) is infrequent among all graduates.

On the positive side, vocational education students appear satisfied with their training and seem to feel good about themselves. A majority find jobs in training-related areas, and graduates of postsecondary vocational training generally have lower unemployment than their nonvocational peers, although this result is quite weak.

Grasso and Shea (1979) also reported no labor market advantage for male vocational graduates. In a rigorous review and reanalysis of three longitudinal data sets, Woods and Haney (1981), found some extremely weak differences in favor of trade and industry graduates; however, the major conclusion is that there are no differences. Similarly, in a review of the major longitudinal surveys, Lewis (1984) concludes that, while business and office preparation reduces unemployment and increases earnings for young women, there is not a comparable effect for young men, either for employment or wages. Finally, although Kang and Bishop (1984) found a small positive effect on three initial labor market indicators when a vocational curriculum was substituted for a general mix of academic courses, this effect was limited to a specific group of subjects (noncollege bound, single, no military experience).

It remains to be seen whether this effect will hold up; Mertens et al. (1980) report that initial advantages for vocational preparation disappear over time. Thus, things may not have changed a great deal since Carbine (1974) wrote over 10 years ago, "There may be no net employment benefits attributable to the high school vocational curriculum" (p. 84). One major and reliable exception to this conclusion is the finding discussed previously that female clerical graduates do better on most employment indicators than do female graduates without clerical training. Every major review has replicated this finding. What this implies about the sex-stereotyped realities for women in the labor market is somewhat disheartening from a feminist, or even from a sex equity perspective. Still, as Woods and Haney (1981) point out, the alternative is often unskilled labor; the benefits of clerical training should not be automatically dismissed, on philosophical grounds, by those of us who can afford to do so.

Given the almost unequivocal nature of the overall evidence, it is somewhat disconcerting to note the continuing optimism with which the data are interpreted. For example, after over 500 pages of analysis demonstrating few if any differences, Woods and Haney (1981) state, "Does vocational education make a difference? Our overall answer to this question is a qualified yes. Evidence indicates that some forms of vocational education for some types of students are associated with a variety of advantages" (p. 8-8-1). Among other things, Mertens and Gardner (1981), in summarizing the results from the YAW study, report the following:

- Earnings on the first regular full-time job were determined primarily by educational level. There were no significant differences in the YAW data between vocational and general curriculum students.

- When personal characteristics and postsecondary attainment were controlled, for neither men nor women was there any direct effect from vocational education on the weeks of unemployment experienced during the last 2 years. (p. 92)

But yet they conclude, "Former vocational students in some program areas experience higher earnings and less unemployment than former general curriculum students. However, the results are far more wideranging than that" (p. 96). In a particularly optimistic interpretation, Lewis and Mertens (1981) note "there are no negative entries. The accumulated evidence on the effects of training is either positive or indicates no significant difference. *Very few studies have found training to be associated with detrimental outcomes, such as less earnings or more unemployment*" (p. 163, emphasis added).

It is, of course, quite reasonable to suggest that the present discussion ignores the subtleties of the data. And, that is no doubt true. However, it is also true that when study after study continues to report only subtle differences, indirect effects, and ancillary outcomes, the most parsimonious conclusion is that there are no differences.

It is suggested here that continued comparison of vocational education with other sorts of education given to other sorts of students is fruitless and flawed by a misconception concerning the nature of the appropriate comparison. The only way ever to determine the comparative effects of vocational education would be randomly to sort matched samples into vocational and general curriculum groups, and to follow them up longitudinally in terms of labor market outcomes. Even if this were possible or desirable, which it obviously is not, such a procedure would control, and thus leave unexamined, the effects of interests, values, and motivation—variables that not only determine self-selection but doubtless interact with the treatment to determine its effectiveness.

The most reasonable question to ask is not "Does vocational education do as well or better for its students than does general education?" but rather, "How well does vocational education do what it is attempting to do in terms of whatever criteria are chosen?" Reasonable comparisons are those between sex and race and between program areas, as well as those focusing on interactions between the two. Another fruitful approach would be to sort subjects (or programs) into groups, not on the basis of their curriculum, but rather in terms of their labor market experience (i.e., high success and low success) and look to see what differentiates the two. This more inductive, yet still empirical approach could lead to a *functional* model of theory construction (Marx 1963) concerning the effects of vocational education that would yield a dynamic basis for both policy and research. McKinney et al. (1985) suggest more or less dispensing with the positivist paradigm altogether and taking the perspective of critical theory, which focuses on involving all interested parties in the evaluation (*stakeholders*) in an ongoing process or action research effort, thus minimizing the focus on outcome in favor of an increased consensus regarding process. Whatever method of reframing the problem is chosen, continuing to conduct comparative between-group outcome studies of vocational versus general education is to continue to ask the wrong question.

### Are Americans Overeducated?

One of the more interesting arguments that is sometimes raised in current discussions of educational outcomes is whether or not Americans are "overeducated" (Levin 1982; Levin and Rumberger 1983; Rumberger 1982, 1983b). A recent series of research and review papers issued

by Stanford University's Institute for Research on Educational Finance and Governance (IFG) discuss the implications of the rising educational level of the American public. Rumberger (1983a) notes:

> Other observers point to a . . . serious problem: the large discrepancy between the high level of education achieved by an increasing number of American workers and the educational requirements of their jobs. Research indicates that a large portion of the workforce—perhaps 25 to 30 percent of recent college graduates—are overqualified for their jobs. . . . This situation not only has unfortunate consequences for those workers whose educational skills are underutilized in the workplace, but evidence suggests it may have contributed to the recent decline in the productivity of the American economy. (p. 2)

Rumberger goes on to point out that the problem is likely to worsen in the future. As older, less-educated workers retire, they are being replaced by more educated, younger workers—presently 25 percent of all new labor market entrants are college educated. The problem is exacerbated by the fact that this sharp increase in educational level is taking place at a time when technology is reducing the educational requirements of many jobs and increasing the demand for low-skilled workers in service and clerical areas. Additionally, Levin and Rumberger (1983) point out that although some "high-tech" jobs (such as computer systems analysts, computer programmers, data processing machine mechanics, and so forth) are projected to grow between 74 and 148 percent by 1990, their absolute numbers are small; on the other hand, job openings in such unskilled job categories as janitors, nurses aides, fast-food workers, and so forth will grow at unprecedented rates. In fact, Levin and Rumberger (1983) point out "no job within high technology fields even makes the 'top 20' in terms of total numbers of jobs added to the U.S. economy" (p. 6). Recent figures released by the U.S. Bureau of Labor Statistics (1984) confirm Levin and Rumberger's analysis (see table 4). These figures imply that more and more workers will be required by the nature of the economy to take jobs that do not make use of their education and skills—the assumption, of course, is that such workers will become bored, dissatisfied, alienated, and nonproductive.

The issue is a complex one. It is certainly true that some jobs, by their very nature, are boring, repetitive, and dehumanizing, not to be considered "self-actualizing" by anyone, no matter what their education or lack thereof. It may also be true that college-educated workers will become alienated and nonproductive if required to perform work for which they are overqualified.

The point is that arguments such as these neglect some very important considerations. Not all workers, possibly not even a majority, derive their identities or major life satisfactions from their jobs. The notion that work is the basic source of meaning in one's life has always been essentially a middle-class concept, as the great majority of workers have always held jobs from which it would be very difficult to extract meaning. Whether or not the advent of what some cynically call "universal higher education" will result in a revolution of rising expectations, as more and more young people are socialized to expect more and more from their work, thus leading to disillusionment and alienation, is basically an empirical question. It may be so, but the data are not yet in. While we await them, it seems instructive to consider two propositions, one philosophical and the other political.

First, current utilitarian arguments aside, education has never been defined only in terms of its relationship to work. The classic role of education in transmitting culture and training the higher intellectual faculties, as well as the vision of education most particularly associated with John Dewey, "that education should develop every aspect of human potential, including the critical faculties and capacities for self-motivated activity" (Grubb and Lazerson 1981, p. 122), is neglected

**TABLE 4**

**EMPLOYMENT AND EMPLOYMENT GROWTH IN THE FASTEST GROWING OCCUPATIONS: 1982-1995**

| Occupations | Employment Growth 1982-1995 | |
|---|---|---|
| | Percentage Increase | Number of New Jobs |
| Fastest Relative Growth [a] | | |
| 1. Computer service technicians | 96.8 | 53,000 |
| 2. Legal assistants | 94.3 | 32,700 |
| 3. Computer systems analysts | 85.3 | 217,000 |
| 4. Computer programmers | 76.9 | 205,000 |
| 5. Computer operators | 75.8 | 160,000 |
| Total | | 667,700 |
| Fastest Absolute Growth [b] | | |
| 1. Building custodians | 27.5 | 779,000 |
| 2. Cashiers | 47.4 | 774,000 |
| 3. Secretaries | 29.5 | 719,000 |
| 4. General office clerks | 29.6 | 696,000 |
| 5. Salesclerks | 23.5 | 685,000 |
| Total | | 3,623,000 |
| Total, all occupations | | 4,290,700 |

SOURCE: Adapted from U.S. Bureau of Labor Statistics (1984).

[a]Based on the percentage increase in the number of jobs created.

[b]Based on the number of jobs created.

in discussions that focus only on the dollar or productivity value associated with each year of education accrued. In this view, although it is possible to be *overqualified*, it is not possible to be *overeducated*. This point deserves more consideration than it gets in our pragmatic day.

Secondly, it seems that it is only those of us who are highly educated who are concerned with the dangers of being overeducated—and it is doubtful that we are talking about ourselves. The disadvantaged would never be guilty of such foolishness. Black males and females in the Class of '72 sample and black women in the YAW data set are significantly more likely to express perceived need for additional schooling than are their white counterparts. They realize very clearly that having a job for which one is overqualified is better than the most likely alternative. This is not to imply that our concern for the growing discrepancy between educational level and job requirements is necessarily either elitist or misplaced. It does, however, ignore some factors that are realities of life for large numbers of people.

## SPECIFIC RELATIONSHIPS BETWEEN EDUCATION AND WORK

### Basic Skills

With a unanimity rare in social science research, all constituencies agree on the importance of basic skills (usually defined as literacy and computation) for employability and productivity. Unfortunately, there is also wide agreement that a large number of American youth are today badly deficient in just these skills that are necessary for vocational survival. Striner (1984) discusses basic skills (which he labels *supportive* skills) and concludes that 20 to 30 percent of persons over 16 years of age in the United States do not read at a level that would enable them to perform basic job tasks (e.g., reading a price or stock number, reading parts lists, etc.). McGowan (1982) quotes a Ford Foundation Report (Hunter and Harman 1979) to the effect that 25 million Americans cannot read at all, while an additional 35 million are functionally illiterate. A U.S. Office of Education study (1984) demonstrated that up to 24 percent of the American adult population lacked functional reading skills.

Recent research sponsored by National Institute of Education bears out this concern. E. L. Richards (1980) surveyed 178 employers in a three-state area of the northeast and found that employers in his sample rated basic academic skills as one of the five most needed competencies for employment; this same group of employers perceived that young workers were most deficient in these very skills, despite schools' emphasis on such areas. Chatham (1982) interviewed personnel officers and first-line supervisors in eight Bay Area corporations and determined that two out of every three entry-level applicants were eliminated on the basis of their written job applications, sometimes accompanied by very brief interviews. Among the characteristics that affected selection were the ability to communicate, completion of an accurate application, and grammar—all of which are, of course, behavioral indicators of basic skills. As one employer noted, "Some of these kids can't even spell the name of their own high school" (p. 2). Basic academic and literacy skills are included in every list of transferable skills generated by the enormous body of research on this topic. (Transferable skills are those that are considered basic to or useful in a wide variety of jobs; this topic is considered in detail later in this monograph.) In a study designed to evaluate the influence of applicants' education and skills on employers' assessment of employability, Hollenbeck and Smith (1984) examined survey data from a National sample of almost 600 employees. Their data strongly indicate that poor attainment of basic skills is one of the major problems with youthful applicants and workers. They report comments such as the following:

> Since the students have poor spelling and general math skills, they cannot compute sales tax and sales discounts. (p. 29)
>
> Get young people to be competent at basic reading, writing, speaking and math skills. We can teach them the rest. We find that many of the high school graduates are unable to spell correctly or use correct grammar. Many are lost . . . when adding more than 2 + 2 in math. (ibid.)

> Get the educational system back to the basics. I feel strongly about the lack of knowledge young people have in simple subjects like math, English grammar, English composition, and spelling. I agree that industrial vocational classes are an important option but *all* students, no matter what career they choose, need to know the basics in math and communication skills just to fare well in society. (p. 30)

It seems fair to point out that in this chorus of voices decrying the apparent decline in basic competencies, at least two minor but contrapuntal themes occur, and should be examined. One is the notion that, rather than a decline in literacy, what we are witnessing is an elevation of social expectation concerning literacy. Resnick and Resnick (1977) point out that it is only relatively recently that literacy (defined as the reading of new material and the gleaning of new information from that material) has been expected of the general population rather than of only a limited elite. Datta (1982), in a thorough review of employment related basic skills, notes, "Such analyses imply that schools are not doing worse than they used to in transmitting literacy, but that society is demanding more literacy for more people" (p. 142). This point of view is represented most strongly by Crain (1984) who suggests that high schools are no longer eliminating marginal students (i.e., low ability students, or those with social or behavioral problems) but rather are awarding diplomas to all students who complete their time. Thus, the diploma no longer represents what it did in the past. The implication is that the schools are educating the "good" students as well as ever, but that by allowing marginal students to graduate, they have removed the ability of the diploma to serve as a sorting device.

This is a curious argument. It is certainly true that literacy expectations have increased dramatically in the last century. It is no doubt also true that more students are graduating who in past years would not have done so. However, to argue that literacy expectations have soared, without reference to the fact that literacy requirements have soared similarly, is to misrepresent the problem. Also, to suggest, as Crain (1984) does, that graduating numerous students who fail to perform indicates high schools' success, is to miss the point.

The second alternative view to be examined is complementary to the first and suggests that, rather than increasing literacy requirements, current technological innovations will reduce the level of performance required, by providing devices that compensate for lack of business skills. Datta (1982) notes, "Voice synthesizers may replace written text in instructional manuals. Television substitutes the ability to comprehend enacted and spoken information for ability to comprehend some kinds of written information. The spelling and editing capacities of word processors may reduce the importance of spelling and grammar as basic writing skills" (p. 143). In this vein, Kaplan and McNeill (1983) observe that technological advances in work aids have already significantly reduced the importance of basic skills from where it was a decade ago.

Again, the argument appears to miss some very basic points. Although it may be true that advances in electronic media and calculating/computing devices will reduce the necessity for basic literacy in certain low-level jobs, it also seems true that lack of these skills will continue to lock workers into these same low-level jobs, just as it does now. While jobs that are now to some degree skilled may become "deskilled," it is still inevitable that deskilled jobs will remain at the bottom of the occupational ladder. Thus, even if basic skills are not declining in the middle and upper socioeconomic levels (a questionable assumption, or at least an empirical question) rationalization of their absence in large numbers of workers (mostly having a lower socioeconomic status) will continue to lock these workers into a permanent underclass.

**Summary**

The body of research indicates that basic academic competencies are (1) necessary and (2) lacking in large numbers of workers. Although it is somewhat unclear to what degree this is attributable to a decline in the quality of education received by schools' traditional clientele, as opposed (or in addition) to the failure of schools to educate the large number of nontraditional (i.e., "marginal") students who now attempt (and/or complete) high school, it seems inevitable that lack of basic skills will continue to disadvantage severely those who fail to acquire them. Arguments to the contrary appear somewhat elitist and ignore the traditional role of education in social mobility.

## General Employability Skills

> The message is seemingly clear enough. Our schools must begin producing students who are not only capable of inquiry and the problem solving process (cognitive), but who have also developed the emotional stability and interpersonal skills necessary for a humanized existence (affective). (Campbell 1974, pp. 13-14)

It is widely recognized that work habits, attitudes, and interpersonal skills constitute a behavioral cluster that is generally considered as important to job success as are basic skills such as literacy and computation. This cluster is known in the literature by many rubrics: for example, affective competencies (Kazanas 1978); industrial discipline; work context skills (Herr 1982). The terminology adopted here (general employability skills) is that of Dunn (1974), although it should be noted that Dunn also considers the basic academic skills discussed previously to be general employability skills, because of their almost universal applicability across occupations.

In a comprehensive review of the literature up to that time, Kazanas (1978) notes, "Schools are responsible not solely for the accumulation of facts but also for providing experiences that enable students to acquire the necessary affective competencies" (p. 2). He synthesizes previous research in education and industry and proposes a list of 63 affective work competencies, including such behavior as punctuality, cooperativeness, emotional stability, honesty, dependability, loyalty, and judgment. Not only were such work habits important in getting a job, but they were also found to be critical in job adjustment and retention. For example, Haccoun and Campbell (1972) found that such areas as responsibility, maturity, attitudes, and work habits constituted one of the two major problem clusters in the work entry experience of youth (the other being work accessibility and career planning), whereas many studies show that the great majority of those who lose their jobs do so, not because of poor technical performance, but because of poor work habits and the inability to get along with others (Boynton 1955; Burns 1973; Wilson 1973; and others).

More recent research reaches the same conclusions. E. L. Richards (1980), in a study described previously, found the employers in his sample agreed that positive attitude, dependability, and communication skills were the most important attributes for young workers to possess, outranking even basic academic skills. An overwhelming majority (72 percent) of those responding believed that personal attributes are more important than previous work experience.

The National Center for Research in Vocational Education has recently completed a major research effort on employer hiring decisions (Hollenbeck 1984; Hollenbeck and Smith 1984) that casts additional light on this issue, and which provides further support for the critical nature of general employability skills. The first report from this study (Hollenbeck 1984) describes an analogue investigation of the hiring process, using 56 Columbus-area employers as subjects. In the first phase of the study, the subjects reviewed computer-generated applications for entry-level

positions in clerical, retail, and machine trades occupations. The applications were systematically varied in terms of education, grade-point average, work history, spelling, and so forth, and employer/subjects were given a list of 25 items that they were to use to screen the applications. The experimental task was to indicate all items that were important in *narrowing* the applicant pool, and to rank order the *three* items that were *most critical* in making the final decision among applicants. Following this phase of the procedure, the employers were shown videotapes of simulated employment interviews, and asked to follow the same rating procedure using 19 screening factors. The results indicate that applications are screened in or out on the basis of specific *content* variables (i.e., specific vocational skills, kinds of jobs held, previously performed duties, and reasons for leaving prior jobs) although spelling, accuracy, and neatness were also significant indicators. However, in the interview phase, *process* variables such as attitude, appearance, and maturity were paramount, with attitude being considered by far the most critical variable and exerting almost twice the influence on the composite hiring index as the next most important variable, which was general appearance (grooming). Thus, at the interview stage of job acquisition, *attitude*, a complex general employability skill, appears to be the most critical factor in employer hiring decisions.

In the second stage of the Employer Hiring Decisions study (Hollenbeck and Smith 1984), a National survey of 600 employers was conducted, again using a simulation methodology that systematically varied candidate characteristics. Although the formal aspects of the study focused on the "trade-offs" between education, work experience, and skill characteristics, a final section of the survey invited the subjects to describe their experiences with and reactions to young workers and their occupational preparation. Hollenbeck and Smith (1984) describe their qualitative analysis of these comments as follows:

> A large percentage of employers making comments about their experiences with young workers in entry level jobs expressed concerns over the poor attitudes exhibited by young people while at work. These comments included references to poor employee work habits, motivation, and responsibility. These characteristics include problems with workmanship, customer interaction, absenteeism, and tardiness. (p. 32)

These researchers conclude that poor work habits and poor work ethics are one of the three major problems of youthful applicants and workers, the other two being poor job search skills (completing application forms and interviewing) and poor attainment of basic skills. Similar conclusions were reached by Peterson (1983) who reported that the three most important factors in getting hired were (1) being serious about work and eager to get a job (attitude), (2) being bright and alert, and (3) being courteous and personable, as well as by Wilms (1983) whose survey of 172 firms in the Los Angeles area indicated that employers emphasized work habits and positive attitude as the most important attributes in getting and succeeding in an entry-level job.

A great deal of additional literature could be cited in support of the importance of general employability skills. Acknowledging the salience of this area, the National Center for Research in Vocational Education researchers attempted to go beyond the mere enumeration of desirable characteristics and perceived deficiencies; positing that employability skills are indeed important to employers, they raised the question of whether youth had accurate perceptions of employer hiring standards, i.e., did they know that these behaviors were important, and what was the effect of the accuracy of such perceptions on employment outcomes (Miguel 1982; Miguel and Foulk 1984)? As the principal investigators posed the problem, "certain aspects of the problem are well known (e.g., what employers say they expect of young workers, which groups are experiencing the most difficulties, possible sources of employability problems). *What is needed is knowledge regarding the linkages between the antecedents and the consequences.* A partial solution lies in gaining a better understanding of youth's perceptions of employer hiring and discipline standards" (p. 3, emphasis added).

These investigators studied a large sample of students enrolled in employability development programs in the secondary schools of three cities. Three hundred and twenty-five high school seniors completed three waves of data collection, which were conducted at the beginning and end of their senior year, and again 1 year later. The questionnaires requested the subjects to rate a variety of job-related items clustered in six factors:

- Job search items (including job application, resume, interview appearance)
- Schooling and training factors (including basic academic and vocational skills)
- Work ethic
- Attitudes
- Work experience
- Productivity

Youths were asked to give their perceptions of employers' standards for hiring and performance in relation to these factors. Additional data were collected from 143 employers, who rated the same items. The findings suggested that while youth had generally accurate perceptions of positive influences on hiring standards, they were somewhat cavalier in their perception of such dependability factors as absenteeism, turnover, not calling in when sick, and so forth. Miguel and Foulk (1984) recommended that schools emphasize the effects of negative influences (i.e., sloppy appearance, absenteeism), the importance of adherence to appropriate work ethics, and the display of appropriate work attitudes. In addition, they suggest developing specific strategies for productivity training, as the youth in this sample consistently underestimated the employer standards for productivity and effort more than any other factors associated with employer standards.

**Summary and Conclusions**

It seems safe to say that this is one of the few instances where common sense and empirical research are in complete agreement. Among the virtually hundreds of studies that have addressed this issue, utilizing various methodologies, techniques, theoretical bases, and samples, no research exists that contradicts the critical importance of general employability, or job adjustment skills. Similarly, it seems apparent that significant numbers of workers, particularly neophyte workers, lack this appropriate affective and attitudinal base for employment and job adjustment. It is unclear how much of this lack is due to disagreement over who is *responsible* for developing this base (i.e., the family, the school, or the workplace), an issue that will be addressed later in this monograph; to ineffective *methods* for inculcating the base; or more directly, to simple *maturation*. After all, most people do eventually get and keep a job, although it is true that some continue to flounder (Super 1957) for significant periods of time.

Research in this area has been hampered by the lack of standardized instruments and a sophisticated theoretical base, although recent work (Crites 1976, 1978; Campbell and Cellini 1981) is promising. It seems reasonable to note that of all the factors, both personal and structural, that impinge on employment, this area is *most* amenable to training and development. Not everyone can learn to program a computer, run a drill press, or even to read and write. But every young person can learn responsibility, dependability, commitment, and productivity. Whatever the schools can do to foster these qualities, they should do.

Finally, it should be pointed out that these issues are likely to become more, not less, critical in the forseeable future. The work by Pratzner and Russell (1984a, 1984b) on the implications of the recent quality of work life movement confirms that interpersonal skills, as well as skills in group process, problem solving, communication, and so forth, will become increasingly central to success in the workplace of the future. Workers who fail to develop what these authors label *socio-technical* literacy are likely to be at an even more serious disadvantage if the present movement toward a high-involvement workplace continues.

### Occupational Adaptability and Transferable Skills

The research reviewed earlier supports the conclusion that there exists widespread and general agreement that basic skills (i.e., literacy and computation) and general employability skills (i.e., work habits and attitudes) are prerequisites for success in any occupational endeavor, whatever the field and level of the job involved. In many occupations, these minimum qualifications (or MQs, as they are known in personnel selection research) are *sufficient* for success; in virtually all others, they are *necessary*. Thus, these factors can be said to be highly *generalizable* or *transferable* from one work situation to another.

The search for other highly transferable skills has been one major focus of NIE inquiry since the mid-1970s. This focus results from the confluence of the following major social and educational policy issues:

- Awareness of the increasing voluntary mobility in the American labor force.
- Transformation of the American economy from a manufacturing orientation to one with focus on service and high technology, which has generated large numbers of displaced workers.
- Social movements of the 1960s and 1970s including the civil rights and women's movements with their accompanying emphasis on equal occupational opportunity.

In a paper presented at the Second Career Education National Forum, Stump (1976) introduced the Occupational Adaptability and Transferable Skills project by noting that, although more and more workers are experiencing job change, a phenomenon that is likely to become an increasing fact of American life, we know little about what facilitates such change. Stump identified the following two primary needs:

- . . . to continue the search for ways of identifying elements in jobs and individuals' abilities that make occupational changes happen. As educators then, we will be able to identify more clearly the skills and abilities which will prepare an individual not only for a job but for the series of jobs that will be his/her career. (p. 15)
- . . . to be more creative in the ways we examine the actual job-movement of our citizens through our studies of job and occupational mobility. (ibid.)

He identified several key questions (e.g., What are transferable skills? Who is mobile? What are the common characteristics of jobs?) that have subsequently been addressed in an unusually well integrated example of programmatic research. The Occupational Adaptability and Transferable Skills project, under the leadership of Dr. Frank Pratzner (see Pratzner 1978), has issued a series of papers, both theoretical and empirical, that focus on these issues and draw implications

for educational practice. This section of the paper will attempt to summarize their findings and point to further areas of relevant inquiry.

**Transferable Skills: What Are They?**

A transferable skill is one that is applicable to more than one situation. Some skills are directly transferable in their entirety (e.g., typing skills learned in school are more or less directly transferable to an office situation) whereas the same skills, or others, may demonstrate their transferability by facilitating new learning (e.g., typing skills may facilitate the learning of word processing skills). It seems apparent that all skills are transferable to some degree (Pratzner 1978; Pratzner and Ashley 1984; Sjogren 1977); however, some are obviously more useful than others, in the sense that they are applicable to a wide variety of situations and occupations.

Sjogren (1977) in his review of the literature, uses the language of the Generic Skills Project (Kawula and Smith 1975; Smith 1979) to answer the question: Which skills are highly transferable? He suggests the following:

- **Mathematics skills**—skills through what is usually regarded as first-year algebra are transferable to a wide variety of occupational situations.
- **Communication skills**—verbal and nonverbal forms of communication, written expression and comprehension, speaking and listening.
- **Interpersonal skills**—this involves, of course, some overlap with communication skills. In general, it includes conversation, giving and receiving instructions, and attending to others in a positive way.
- **Reasoning skills**—estimation and information skills, setting priorities, determining alternatives, and planning. Although Sjogren does not point it out, such skills, while certainly teachable to a certain degree, are most likely highly saturated by general intelligence, a point also made by Knapp (1979).
- **Manipulative skills**—sensory acuity, manual dexterity, coordination, and other psychomotor abilities. Sjogren suggests that these may be less amenable to training than others; in addition, it seems likely that these skills are not as generalizable to white-collar occupations as are the others.

Research has identified many other lists of transferable skills, and there appears to be a good deal of overlap among them. Wiant (1977) conducted seminars with employers and educators in nine cities to elicit their view of skills that are considered highly transferable. These subjects noted the extreme importance of intellectual skills (literacy, computation, and reasoning), interpersonal skills, and attitudinal skills (work habits and attitudes). Wiant abstracted the following rank ordering from his data:

1. Communicating
2. Working with others
3. Problem solving
4. Analyzing/assessing

5. Planning/layout

6. Organizing

7. Managing others

8. Decision making

9. Positive work attitude

In a more recent approach to the problem, Selz, Jones, and Ashley (1980) asked a National sample of the general adult population, as well as teachers, students, and employers to rate an extensive skill list in terms of importance for work and life. According to these authors, 50 percent or more of all those questioned thought one would have a great deal of difficulty at work if one did not have the following abilities:

- Using reading, writing, and math skills the job calls for
- Using tools and equipment the job calls for
- Getting along with others
- Dealing with pressures to get the job done
- Following rules and policies
- Having a good work attitude

It seems that there is a good deal of agreement on what constitutes the most transferable skills. They also appear to be those that schools try most to teach. Why then, is there a sense (and a good bit of supporting data) that workers are deficient in these very areas? Several possibilities are suggested by the research including the following:

1. **Schools assume transfer, but they do not teach for it.** Miguel (1977), in his review of various programs that had been identified as having some awareness of or focus on transferability, notes, "Educators are unlikely to deny the value of their students becoming occupationally transferable. . . . [But] very little attempt is made programmatically to develop these skills. Academic programs, in particular, often belittle the pragmatic concerns associated with work and many vocational programs are obsessed with skill preparation that is unnecessarily circumscribed. Consequently, if skills for occupational transferability are developed, it is only because they have in some way inadvertently crept into the curriculum." (p. 24)

   Although a great deal is known about the technical aspects of learning transfer (Altman 1976), it is not clear that educators have either the time or inclination to implement this technology. As part of the Transferable Skills Project, some good basic materials aimed at teachers and written in nontechnical language have become available on this topic (e.g., Abram, Covert, and Kitchen 1981; Selz and Ashley 1978); it is hoped that such materials may facilitate teachers' efforts in the area. Selz, Jones, and Ashley (1980) also point out that there are likely significant differences in what schools teach and what jobs require in the application of basic skills, such as reading and math (see also Short 1979; and Smith

1979). For example, school math problems typically present all the information necessary to produce the correct answer; real life situations are rarely so accommodating. Similarly, Smith (1979) suggests that writing at work is characterized by the completion of business forms and other somewhat instrumental modes of written communication. Creative essay writing, the sine qua non of traditional English instruction, is irrelevant at best.

2. **Workers, particularly youth and returning women, are unaware of the skills they possess that are applicable to many situations.** Miguel (1977) writes "So often individuals are unaware of their skills and how they can be of value in occupational transfers" (p. 25). The focus on actual tasks performed, rather than the knowledge, skills, and abilities required to perform them, contributes to this situation. Interestingly, there are several popular and commercially available techniques, such as the Haldane method and Bolles' (1977) work, which are specifically targeted towards self-analysis and assessment. The Haldane method of "success factor analysis" is the basis of Columbia University's DIG (Deeper Investigation of Growth) program. Recent evaluations of the program (Wiant and Hutchinson 1979) indicate that participants benefit appreciably from it; such programs could surely be integrated into current career education activities without a great deal of difficulty. The problem of skill awareness leads to a last consideration in the area of occupational adaptability: the distinction between transferable skills and transfer skills, which is considered in the following section.

**Transfer Skills**

Knapp (1979) notes that, whereas *transferable skills* are those that can be applied in a variety of work and life settings, *transfer skills* are cognitive functions which facilitate the transfer of skills from one setting to the next. Transferable skills are a *nonpsychological variable*—the degree of transferability depends (mostly) on the nature of the skill itself and on the occupational environment. Conversely, transfer skills are a *psychological variable*; they include such things as cue recognition, discrimination, association, rule application, and so on. Woditsch (1977) suggests that the following skills subsume the behaviors that are sufficient for smooth conceptual transfer:

- selective attention
- sustained analysis
- analyzing
- suspension of closure
- auto censorship

Clearly, these are properties of the individual, not of the situation.

Although widely discussed in the educational psychology literature (e.g., Royer 1979; Stolurow, Davis, and Williams 1966), such individual cognitive variables are but rarely reviewed in discussions of occupational adaptability. Knapp (1979) notes that these variables are probably closely related to the psychological construct of intelligence, but then, in a somewhat contradictory view, suggests that objective assessment techniques are less than adequate for the measurement of transfer skills. She also states, "The facility for transfer can be taught, yet our educational

system frequently does not teach these skills. Many programs not only do not teach for transfer, but existing teaching and assessment methods often retard transfer" (p. 4).

The general issue of the extent to which individuals can be trained in the performance of cognitive functions that are closely related to general intelligence is one that the present author is not brave enough to approach. However, in the specific case with which we are presently concerned, it appears that at least some occupational transfer skills are quite learnable (e.g., self-analysis) and it would seem reasonable for educators to expend more time and effort consciously training students to develop these skills. This is an area where applied research is clearly needed.

## THE EFFECTIVENESS OF VARIOUS ENVIRONMENTS AND PROGRAMS FOR TEACHING AND LEARNING

The research reviewed previously strongly supports the notion that basic literacy and computational skills, and general employability skills are both critical to being hired, and highly transferable, thus increasing occupational adaptability. If it is agreed that one of the roles of education is to prepare people for work, and if these skills are critical for work adjustment, where and how are such skills best learned? The main focus here will be on the distinction between traditional and alternative learning environments, although related topics will be considered briefly (e.g., the role of the workplace).

Two programs of research set the stage for our discussion. The first was conducted at the National Center for Research in Vocational Education (Selz 1980; Selz, Jones, and Ashley 1980) and the second at the Northwest Regional Educational Laboratory (NWREL 1982; Owens 1983).

In an innovative piece of work that originated in the Occupational Adaptability and Transferable Skills project discussed earlier (Pratzner 1978), Selz and her colleagues identified a set of functional competencies thought to be critical for adapting to the world of work. They then asked their National sample of the general public, as well as teachers, students, and employers where these competencies should be taught and where they were actually learned (at home, at school, or on the job). The competencies were grouped into the following four broad categories:

1. **Traditional job values and expectations**, a cluster that focused mainly on work habits and attitudes, and that also included using basic and vocational skills.

2. **Job advancement and promotion**, including knowing employee rights and self-evaluation.

3. **Taking charge**, which appears to focus on autonomy, risk taking, and responsibility for self.

4. **Finding one's place**, which included career decision-making competencies (Crites 1978) and job-search skills.

These four factors were, somewhat whimsically, labeled "Doing what the man wants," "Getting yours," "Taking charge," and "Finding your niche." A frequency count of the competencies in each set in terms of where they *should* be taught and where they were actually learned yields the pattern in figure 1.

The most stunning thing about the data in figure 1 is the practically universal agreement that all of these employability skills are *actually learned, not at home or in school, but on the job.* Thus, though the entire sample agreed that teaching good work habits and attitudes is the responsibility of the home, they also agreed that they are actually learned on the job. Similarly, although career decision-making and job-search skills are seen as the responsibility of the school, they too are learned primarily on the job. [Despite the clarity of this overall pattern, the data demonstrate some subtleties not captured by the present discussion. The reader is referred to Selz (1980) and Selz,

| Set | Questions | Groups | | | |
|---|---|---|---|---|---|
| | | General Public | Teachers | Students | Employers |
| "Doing what the man wants" | Should | Home | Home | Home | Home |
| | Actual | Job | Job | Job | Job |
| "Getting yours" | Should | Job | Job | Job | Job |
| | Actual | Job | Job | Job | Job |
| "Taking charge" | Should | Job | School | School | School |
| | Actual | Job | Job | Job | Job |
| "Finding your niche" | Should | School | School | School | School |
| | Actual | Job | School/ Job | School/ Job | Job |

SOURCE: Selz 1980, p. 8.

**Figure 1. Where skills should be taught and where they are actually learned**

Jones, and Ashley (1980) for a more complete analysis.] Selz and her colleagues discuss the vicious cycle this presents for youth, particularly minority youth, who cannot get hired because they lack the requisite employability skills but do not learn employability skills until they have a job.

The second research program with which we are concerned here has to do with youth responsibility: what it is, where it is learned, and where it is demonstrated (Owens 1983). The students involved in this study perceived the greatest *help* in becoming responsible as coming from home, work, and school, in that order. However, they rated themselves as behaving *most* responsibly at their job sites, and *least* responsibly in their regular classrooms. Most respondents attributed this pattern to the fact that at work they were given real responsibility and depended upon to fulfill it. The implication of studies such as these is that, for whatever reason, the schools are not perceived as fulfilling their responsibilities for preparing students for the transition to work. Reasons given for this state of affairs are quite wide-ranging and heterogeneous, from the supposed overfocus on academic preparation for the college bound to overly narrow emphasis on specific technical skill training. In addition, many students drop out as a result of continuing failure to master the curriculum, leaving themselves with poor preparation, poor self-esteem, and a belief that contemporary education is irrelevant to them.

The common thread running through this research is that the workplace, for whatever reason, appears to be the site of most learning concerning work, both in terms of content and process. The implication is that, as traditional classroom instructional techniques have apparently not achieved the desired outcomes, alternatives must be considered. One such alternative educational program, experience-based career education (EBCE) (Jenks 1976; and others), has been posited as possibly more effective at inculcating employability skills because of its close tie to the workplace and its emphasis on real experiences and responsibilities for the learner.

It is not possible here to review the enormous body of evaluation research conducted on EBCE, mostly by the Northwest Regional Educational Lab, the Far West Regional Educational Lab, and Research for Better Schools (RBS) in Philadelphia. Most of it is descriptive and qualitative—both by philosophy and to some degree because of the nature of the program—although some rigorous work has been done [see particularly the work done at the National Center for Research in Vocational Education by Coleman, Beckman, and Wheatley 1979; Crowe and Harvey 1979; Miguel and Jipp 1980; and Miguel et al. 1979]. Despite the many evaluation studies, however, at present the data do not allow firm conclusions concerning the question of interest. Biester (1976) reported what are essentially opinion surveys of students, parents, and community participants, which generally agreed that EBCE students in the RBS program had increased their interpersonal skills and related competencies. Most of the data available are of this sort and, while promising, are certainly not definitive enough to permit conclusions.

Obviously, EBCE and other alternative learning programs are subject to all of the difficulties inherent in any educational evaluation, plus a good many more. Still, it seems reasonable to assume that such models have much to offer in terms of beginning to think of answers to the employability skills question. The twin equations of poor skills equal no job and no job equals poor skills must begin to admit to an alternative solution.

**Summary**

What evidence there is clearly suggests that many employability skills are learned mostly on the job, although that is not where most people think they should be learned. Alternative experiential education programs such as EBCE show promise for skill development, but the results of this ambitious educational undertaking are not yet clear cut. Clearly though, this is an area where the schools need to do more.

## METHODOLOGICAL CONSIDERATIONS AND CRITIQUE

Every review monograph inevitably culminates in a call for more and better research, and the present effort is no exception. Rather than making specific recommendations, however, this section will offer some observations on the nature of this monumental body of research that attempts to describe the nature of the relationship between education and work. These observations are influenced, as always, by the organizing framework and values of the observer, in this case a vocational/counseling psychologist, with the concomitant philosophical commitment to an individual differences perspective and a methodological commitment to the experimental, quantitative procedures of traditional midwestern psychology. From this perspective, the following impressions emerged with regularity:

- The majority of the research is characterized by large-scale survey methodology that, while helpful for identifying overall trends at a National or regional level, is less useful for understanding and predicting the experiences of individuals. The prevailing point of view is mostly economic, or sociological, with relatively little emphasis on psychological variables.

  This focus on "macrovariables" to the relative exclusion of individual differences results in a body of research with less explanatory power than is optimal, not to mention less usefulness for individual as opposed to policy decisions. An excellent case in point is the almost total neglect of intellectual variables (e.g., intelligence or general ability, special aptitudes) as well as noncognitive variables such as interests and personality. Studies that tell us about *groups* of people (e.g., males, females, blacks, whites, high SES, low SES, and so forth) tell us little about any individual, and thus cannot contribute to program planning except at a most general level. The failure of many educational programs to demonstrate their usefulness clearly is likely not unrelated to this lack of specification of important subject variables.

- The second observation, which is most likely related to the first, is that there appears to be an overreliance on economic formulations of human behavior. Although it may be true that individuals seek to maximize their outcomes, it is also true that not everyone values economic outcomes to the degree that one would suspect from reading the literature. Again, focus on individual differences in such variables as career salience, work values, interests, and so forth would add much explanatory power.

- There is a strong tendency, particularly in large-scale studies, to "overinterpret the data." Innumerable pages of analysis are devoted to interpreting and discussing "differences" that are not statistically significant, even though sample sizes reach into the thousands. Differences that are not significant are, by definition, not differences at all and should be so stated.

- Qualitative methodologies (theme interpretation, ethnography, and so forth) are useful for hypothesis *formulation*, but cannot contribute to hypothesis *testing*. Although rigorous experimental research is difficult in an applied setting, the effort is worth the yield. More

small-scale experimental and quasiexperimental studies are needed to test insights gained from interviews, opinion surveys, and so forth.

- Although a great deal of very good work is being done to assist women to achieve a full range of career options, no comparable effort is being made with males. The sexual division of labor will not change substantially until movement across gender-appropriate lines goes in *both* directions.

Finally, it should be underscored that there is little, if any, interdisciplinary collaboration. This is unfortunate, as each discipline contributes necessary, but not sufficient, insight. The bodies of research reviewed here often exist in splendid isolation from one another. This situation should be addressed, as the topic is far too important to be left to any of us alone.

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